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Baker 15-5-2-54911-02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**Patent Application**

Applicant(s): A.D. Baker et al.  
Case: 15-5-2-5-4  
Serial No.: 09/272,955  
Filing Date: March 19, 1999  
Group: 2673  
Examiner: Lun Yi Lao

I hereby certify that this paper is being deposited on this date with the U.S. Postal Service as first class mail addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Signature: Linda F. Haskin Date: August 28, 2002

Title: Automated Administration System for State-Based  
Control of a Terminal User Interface

APPEAL BRIEF

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Assistant Commissioner for Patents  
Washington, D.C. 20231

SEP 10 2002

Technology Center 2400

Sir:

Applicants hereby appeal the final rejection of claims 1-4, 6-8, 10-14, 16-18 and 20-22 of the above-identified application.

REAL PARTY IN INTEREST

The present application is assigned to Avaya Technology Corp. The application was initially assigned to Lucent Technologies Inc. as evidenced by an Assignment and Agreement document recorded in the U.S. Patent and Trademark Office on March 19, 1999 at Reel 9847, Frame 0001. Lucent Technologies Inc. subsequently assigned the application to Avaya Technology Corp. in a Patent Assignment document effective as of September 29, 2000. The current assignee Avaya Technology Corp. is the real party in interest.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals and interferences.

09/06/2002 AWONDAF1 00000045 501602 09272955

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### STATUS OF CLAIMS

The present application was filed with claims 1-22. Claims 9 and 19 were canceled by Applicants in an Amendment dated April 10, 2002. Claims 1-8, 10-18 and 20-22 are currently pending in the application.

Claims 5 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

Claims 1-4, 6-8, 10-14, 16-18 and 20-22 stand finally rejected under 35 U.S.C. §102(e). Claims 1-4, 6-8, 10-14, 16-18 and 20-22 are appealed.

### STATUS OF AMENDMENTS

There has been no amendment filed subsequent to the final rejection.

### SUMMARY OF INVENTION

The present invention provides a method, apparatus and article of manufacture for controlling terminals in a communication system. More particularly, the invention involves utilizing an automated set of operations to generate information representative of at least first and second state machines, the first and second state machines controlling respective first and second sets of labels for soft-labeled keys (SLKs) of respective first and second terminals associated with respective first and second system users. The automated operations process input indicative of particular terminal features desired by each of the first and second users in order to generate the respective first and second state machines. Advantageously, the first and second state machines produce different SLK displays for the respective first and second terminals based on the particular terminal features desired by the corresponding users.

An illustrative embodiment of the claimed invention is implemented in a communication system 100 which includes an enterprise switch 110 and a wireless terminal 122 as shown in FIG. 1 of the specification. The wireless terminal 122 as illustrated in FIG. 2 includes a display 156 comprising a set of SLK labels 170-1, 170-2, 170-3 and 170-4 which indicate the functions associated with SLKs K1, K2, K3 and K4, respectively. The present invention in the illustrative

embodiment “provides techniques for controlling the SLKs and their associated labels on the wireless terminal 122” through utilization of a “user interface state machine” that may be “downloaded into the wireless terminal 122 by the switch 110” (Specification, page 7, lines 3-8). The state machine “may be in the form of a state transition table or other suitable representation of state transition information” (Specification, page 7, lines 8-9). Use of a state machine in accordance with the claimed invention for controlling SLK labels can provide a number of significant advantages, outlined as follows at page 7, lines 9-14 of the specification:

The state machine of the illustrative embodiment resolves update contention by providing local updates based on state, relieves system congestion by maintaining SLK updates locally in the wireless terminal, resolves interpretive race conditions by maintaining an explicit set of state-based button/label interpretation assignments locally in the wireless terminal, and reduces bandwidth consumption by either reducing or eliminating system updates to the wireless terminal interface.

The above-noted automated set of operations for creating the claimed first and second state machines for controlling SLK labels on respective first and second terminals is described as follows in the specification, at page 15, line 7, to page 17, line 6, with emphasis supplied:

An automated administration system for generating a state machine in accordance with the invention will now be described. As noted above, the state transition table or a suitable representation thereof may be loaded by the switch into the terminal at terminal registration time, system startup, system administration time, etc. Although the system administrator may manually create the necessary relationships between the various system features and the state machine that is loaded into the terminal, in many applications it will generally be more reliable and efficient to utilize an automated administration system in accordance with the invention. When creating user interface state machines on a per-user or per-group basis, a human operator, responsible for up to several thousand terminals, may not be capable of following a complex set of written rules to ensure reliable creation of the

state machines. During the definition of the state transition tables, this set of rules about which features have antecedent or descendant relationships is applied to ensure proper transition operation, and after operational integrity is assured, additional rules pertaining to consistency of presentation are enforced. The antecedent or descendant relationships may be characterized in the form of a tree such as that shown in FIG. 4, and examples of such relationships can be seen in the state transition table of FIGS. 6A and 6B.

The automated administration aspects of the invention provide a mechanism for automating the creation of the state machine for controlling terminal SLKs. This mechanism will be illustrated for creation of a state transition table which fully characterizes the state machine, but it should be recognized that the invention is similarly applicable to the creation of other representations of state machine information.

...

The automated administration process described above is generally repeated for each individual user or for groups of users, based on the information in the terminal subscription form for a given user or group. As a result, each user or group of users can be provided with a unique state machine and thus a unique arrangement of features accessible via their SLKs.

Therefore, as indicated previously, the invention is directed to utilization of an automated set of operations to generate different state machines for providing different types of SLK label control for different system users.

#### ISSUE PRESENTED FOR REVIEW

Whether claims 1-4, 6-8, 10-14, 16-18 and 20-22 are unpatentable under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 5,956,655 (hereinafter "Suzuki").

#### GROUPING OF CLAIMS

The claims in the above-noted group of claims do not stand or fall together. More particularly, claims 1, 2, 8, 10-12, 18 and 20-22 stand or fall together, claims 3 and 13 stand or fall together, claims 4 and 14 stand or fall together, claims 6 and 16 stand or fall together, and claims 7

and 17 stand or fall together. The claim pairs 3 and 13, 4 and 14, 6 and 16, and 7 and 17 are therefore each believed to be separately patentable apart from their associated independent claims.

#### ARGUMENT

It is well settled that, in order for a claim to be anticipated by a given reference under §102, that reference must teach each and every element of the claim. Applicants submit that Suzuki fails to disclose all of the elements of each of the rejected claims.

Independent claims 1, 11 and 22 each specify that an automated set of operations generates information representative of at least a first state machine and a second state machine, the first state machine for controlling a first set of labels for SLKs of a first terminal associated with a first user, and the second state machine for controlling a second set of labels for soft-labeled keys of a second terminal associated with a second user. These claims also specify that the automated set of operations processes input indicative of terminal features desired by each of said first user and said second user in order to generate the respective first and second state machines. In this way, the first and second state machines produce different SLK displays for the respective first and second terminals.

The elements described above with regard to claims 1, 11 and 22 are not disclosed by Suzuki. In the Response to Arguments section of the final Office Action dated May 13, 2002, at page 4, first paragraph, the Examiner argues that column 28, lines 35-39 of Suzuki discloses the claimed first and second state machines producing different SLK displays for the respective first and second terminals. Applicants respectfully disagree.

There are at least two problems with the argument put forth by the Examiner. First, as stated above, independent claims 1, 11 and 22 claim more than simply producing different SLK displays for different terminals. Claims 1, 11 and 22 each specify an automated set of operations that generate information representative of at least a first state machine and a second state machine for controlling a set of labels for SLKs of each of the respective terminals. Such a set of automated operations is not disclosed in Suzuki. In addition, there is no disclosure in Suzuki of the automated set of operations processing input indicative of terminal features desired by each of a first user and a second user in order to generate respective first and second state machines, thereby producing

different SLK displays for the respective first and second terminals. This aspect of claims 1, 11 and 22 is not specifically addressed in the final Office Action.

Second, column 28, lines 35-39 of Suzuki does not address first and second state machines producing different SLK labels for the respective first and second terminals, as argued by the Examiner. Column 28, lines 32-39 of Suzuki states as follows:

In addition, it is also possible to provide a plurality of displays in different languages for the same display content, such that a user can select a display in a desired language by means of a display format setting mode according to his need. In this manner, it becomes possible to provide the portable communication device which can be used by many people with different mother tongues.

Thus, this section of Suzuki merely discloses the ability to change SLK display language through selection of a display format at a particular communication device. There is no disclosure of an automated set of operations that generates information representative of at least a first state machine and a second state machine for controlling a set of labels for SLKs of each of the respective terminals, and that processes input indicative of terminal features desired by each of a first user and said second user in order to generate respective first and second state machines, thereby producing different SLK displays for the respective first and second terminals. Instead, each user in the Suzuki system apparently can select a different display language for the SLK labels on his or her terminal. The claimed automated set of operations for generating different state machines for the different terminals is not present, and the associated elements of claims 1, 11 and 22, are therefore not disclosed. Selection of a given label language at a particular terminal apparently has no impact whatsoever on any state-based control aspects of Suzuki.

Since Suzuki fails to disclose all of the elements of independent claims 1, 11 and 22, and therefore of their associated dependent claims, Applicants respectfully request the withdrawal of the §102(e) rejection of claims 1-4, 6-8, 10-14, 16-18 and 20-22.

With regard to claims 3 and 13, these claims indicate that the information generated by the automated set of operations includes a control table specifying a set of label identifiers for each of

at least a subset of the plurality of states of at least one of the first and second terminals, and a label table specifying, for each of at least a subset of the labels identified by a given one of the label identifiers, a character string corresponding to the label, a feature identifier associated with the label, and a presentation attribute. In the Response to Arguments section of the final Office Action, at page 4, second paragraph, the Examiner asserts that these various elements are disclosed in Suzuki in FIGS. 5-9 and column 28, lines 15-39. Applicants respectfully disagree.

FIGS. 5-9 of Suzuki show various state transition diagrams. However, there is no disclosure of a control table specifying a set of label identifiers for each of at least a subset of the plurality of states of at least one of the first and second terminals, and a label table specifying, for each of at least a subset of the labels identified by a given one of the label identifiers, a character string corresponding to the label, a feature identifier associated with the label, and a presentation attribute, as set forth in claims 3 and 13. In addition, as discussed above, the information set forth in FIGS. 5-9 of Suzuki is not generated by an automated set of operations defined in claims 1 and 11, as is the control table of claims 3 and 13, respectively.

Examples of the claimed arrangements are described in the specification at page 12, line 28 to page 14, line 24, and in FIGS. 7 and 8. As explained in the specification, an example control table as shown in FIG. 7 includes a state identifier STATE\_ID and a list of label identifiers (LIDs) which serve as pointers to the associated SLK labels for that state. Each of the LIDs in the control table of FIG. 7 points to a specific set of information in the label table of FIG. 8. This set of information in the label table may include, for a given LID, a character string corresponding to a given label, and a feature identifier, e.g., an SBID, corresponding to the internal system code for a given feature. The label table as stored in the terminal may also include a presentation attribute for the current presentation state, e.g., on, off, blink, etc. Advantageously, the label table provides a single point of update for multiple occurrences of a single SLK string.

Since a control table or label table as defined in claims 3 and 13 is not disclosed in Suzuki, Applicants respectfully request the withdrawal of the §102(e) rejection of claims 3 and 13, and the claims dependent thereon.

Claims 4 and 14 further define claims 3 and 13, respectively, wherein the set of operations includes an operation for checking a system database to extract a system identifier and a character

string for the corresponding label. This element is not specifically addressed by the Examiner in the final Office Action. The Examiner has failed to indicate with particularity which portion of Suzuki is alleged to disclose this element, and Applicants have been unable to find in Suzuki any teaching regarding this element.

Claims 6 and 16 further define claims 4 and 14, respectively, wherein the set of operations includes an operation for determining a descendant relationship definition for the extracted feature identifier. Again, this element is not specifically addressed by the Examiner in the final Office Action. The Examiner has failed to indicate with particularity which portion of Suzuki is alleged to disclose this element, and Applicants have been unable to find in Suzuki any teaching regarding this element.

Claims 7 and 17 further define claims 6 and 16, respectively, wherein the set of operations includes an operation for creating a state in a state machine based on the relationship definition for the extracted feature identifier. Once again, this element is not specifically addressed by the Examiner in the final Office Action. The Examiner has failed to indicate with particularity which portion of Suzuki is alleged to disclose this element, and Applicants have been unable to find in Suzuki any teaching regarding this element.

Accordingly, Applicants respectfully submit that Suzuki fails to teach each and every element of the rejected claims. Therefore, at least for the foregoing reasons, Applicants believe that claims 1-8, 10-18 and 20-22 are in condition for allowance, and respectfully request withdrawal of the §102(e) rejection.

Respectfully submitted,



Date: August 28, 2002

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## APPENDIX

1. (Amended) A method of controlling a plurality of terminals in a communication system, the method comprising the step of:

utilizing an automated set of operations to generate information representative of at least a first state machine and a second state machine, the first state machine for controlling a first set of labels for soft-labeled keys of a first terminal associated with a first user, and the second state machine for controlling a second set of labels for soft-labeled keys of a second terminal associated with a second user, wherein the automated set of operations process input indicative of terminal features desired by each of said first user and said second user in order to generate the respective first and second state machines, the first and second state machines producing different soft-labeled key displays for the respective first and second terminals.

2. (Amended) The method of claim 1 further including the step of determining a set of label identifiers for each of at least a subset of the states of at least one of the first and second state machines, wherein each of the label identifiers specifies a label to be associated with a given one of the soft-labeled keys of the corresponding terminal in at least one of the states.

3. (Amended) The method of claim 1 wherein the information includes a control table specifying a set of label identifiers for each of at least a subset of the plurality of states of at least one of the first and second terminals, and a label table specifying, for each of at least a subset of the labels identified by a given one of the label identifiers, a character string corresponding to the label, a feature identifier associated with the label, and a presentation attribute.

4. The method of claim 3 wherein the set of operations includes an operation for checking a system database to extract a system feature identifier and a character string for the corresponding label.

5. The method of claim 4 wherein the set of operations includes operations for (i) checking the label table to determine if there is an entry already present for the extracted feature identifier, (ii) if no entry is found in the label table, assigning a label identifier to the feature, inserting that label identifier into a set of label identifiers associated with the corresponding state, and updating the label table with the new label identifier, the feature identifier and the character string for the label, and (iii) if an entry is found in the label table for the feature identifier, extracting the label identifier from the label table and assigning it to the next open position for the corresponding state in the control table.

6. The method of claim 4 wherein the set of operations includes an operation for determining a descendant relationship definition for the extracted feature identifier.

7. The method of claim 6 wherein the set of operations includes an operation for creating a state in the state machine based on the relationship definition for the extracted feature identifier.

8. The method of claim 1 further including the step of repeating the set of operations for each of a plurality of sets of desired terminal features, wherein each of at least a subset of the plurality of sets is associated with a different system user or group of users.

9. (Canceled) The method of claim 1 wherein the automated set of operations generate different state machines for different users or groups of users of the system.

10. The method of claim 1 wherein the set of operations are implemented at least in part in software associated with a switch of the system.

11. (Amended) An apparatus comprising:

a processor for implementing an automated set of operations to generate information representative of at least a first state machine and a second state machine, the first state machine for controlling a first set of labels for soft-labeled keys of a first terminal associated with a first user, and the second state machine for controlling a second set of labels for soft-labeled keys of second a terminal associated with a second user, wherein the automated set of operations process input indicative of terminal features desired by each of said first user and said second user in order to generate the respective first and second state machines, the first and second state machines producing different soft-labeled key displays for the respective first and second terminals; and

a memory for at least temporarily storing at least a portion of the information.

12. (Amended) The apparatus of claim 11 wherein the processor is further operative to associate a set of label identifiers with each of at least a subset of the states of at least one of the first and second state machines, wherein each of the label identifiers specifies a label to be associated with a given one of the soft-labeled keys of the corresponding terminal in at least one of the states.

13. (Amended) The apparatus of claim 11 wherein the information includes a control table specifying a set of label identifiers for each of at least a subset of the plurality of states of at least one of the first and second terminals, and a label table specifying, for each of at least a subset of the labels identified by a given one of the label identifiers, a character string corresponding to the label, a feature identifier associated with the label, and a presentation attribute.

14. The apparatus of claim 13 wherein the set of operations includes an operation for checking a system database to extract a system feature identifier and a character string for the corresponding label.

15. The apparatus of claim 14 wherein the set of operations includes operations for (i) checking the label table to determine if there is an entry already present for the extracted feature identifier, (ii) if no entry is found in the label table, assigning a label identifier to the feature, inserting that label identifier into a set of label identifiers associated with the corresponding state, and updating the label table with the new label identifier, the feature identifier and the character string for the label, and (iii) if an entry is found in the label table for the feature identifier, extracting the label identifier from the label table and assigning it to the corresponding state in the control table.

16. The apparatus of claim 14 wherein the set of operations includes an operation for determining a descendant relationship definition for the extracted feature identifier.

17. The apparatus of claim 16 wherein the set of operations includes an operation for creating a state in the state machine based on the relationship definition for the extracted feature identifier.

18. The apparatus of claim 11 wherein the processor is further operative to repeat the set of operations for each of a plurality of sets of desired terminal features, wherein each of at least a subset of the plurality of sets is associated with a different system user or group of users.

19. (Canceled) The apparatus of claim 11 wherein the automated set of operations generate different state machines for different users or groups of users of the system.

20. The apparatus of claim 11 wherein the processor and memory are elements of a switch of the system.

21. The apparatus of claim 11 wherein the processor and memory are elements of a computer associated with a switch of the system.

22. (Amended) An article of manufacture comprising a machine-readable storage medium storing one or more programs for implementing a method of controlling a plurality of terminals in a communication system, wherein the one or more programs comprise an automated set of operations to generate information representative of at least a first state machine and a second state machine, the first state machine for controlling a first set of labels for soft-labeled keys of a first

terminal associated with a first user, and the second state machine for controlling a second set of labels for soft-labeled keys of a second terminal associated with a second user, wherein the automated set of operations process input indicative of terminal features desired by each of said first user and said second user in order to generate the respective first and second state machines, the first and second state machines producing different soft-labeled key displays for the respective first and second terminals.



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Baker 15-5-2-5-4 #11

LTyson

09-11-02

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Patent Application

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I hereby certify that this paper is being deposited on this date with the U.S. Postal Service as first class mail addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Signature: Luna Z. Han Date: August 28, 2002

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TRANSMITTAL OF APPEAL BRIEF

Assistant Commissioner for Patents  
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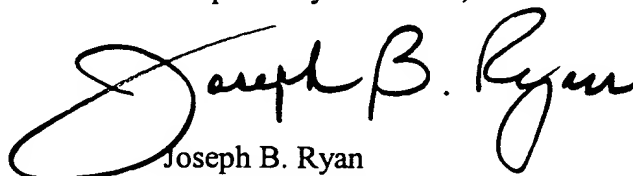
Sir:

Submitted herewith are the following documents relating to the above-identified patent application:

- (1) Appeal Brief in triplicate (original and two copies);
- (2) Copy of Notice of Appeal, filed on June 24, 2002, with copy of stamped return postcard indicating receipt of Notice by PTO on June 28, 2002; and
- (3) Statement Under 37 C.F.R. §3.73(b) with attachments.

There is an additional fee of \$320 due in conjunction with this submission under 37 CFR §1.17(c). Please charge **Avaya Inc. Deposit Account No. 50-1602** the amount of \$320, to cover this fee. In the event of non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit **Deposit Account No. 50-1602** as required to correct the error. A duplicate copy of this letter and two copies of the Appeal Brief are enclosed.

Respectfully submitted,



Date: August 28, 2002

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